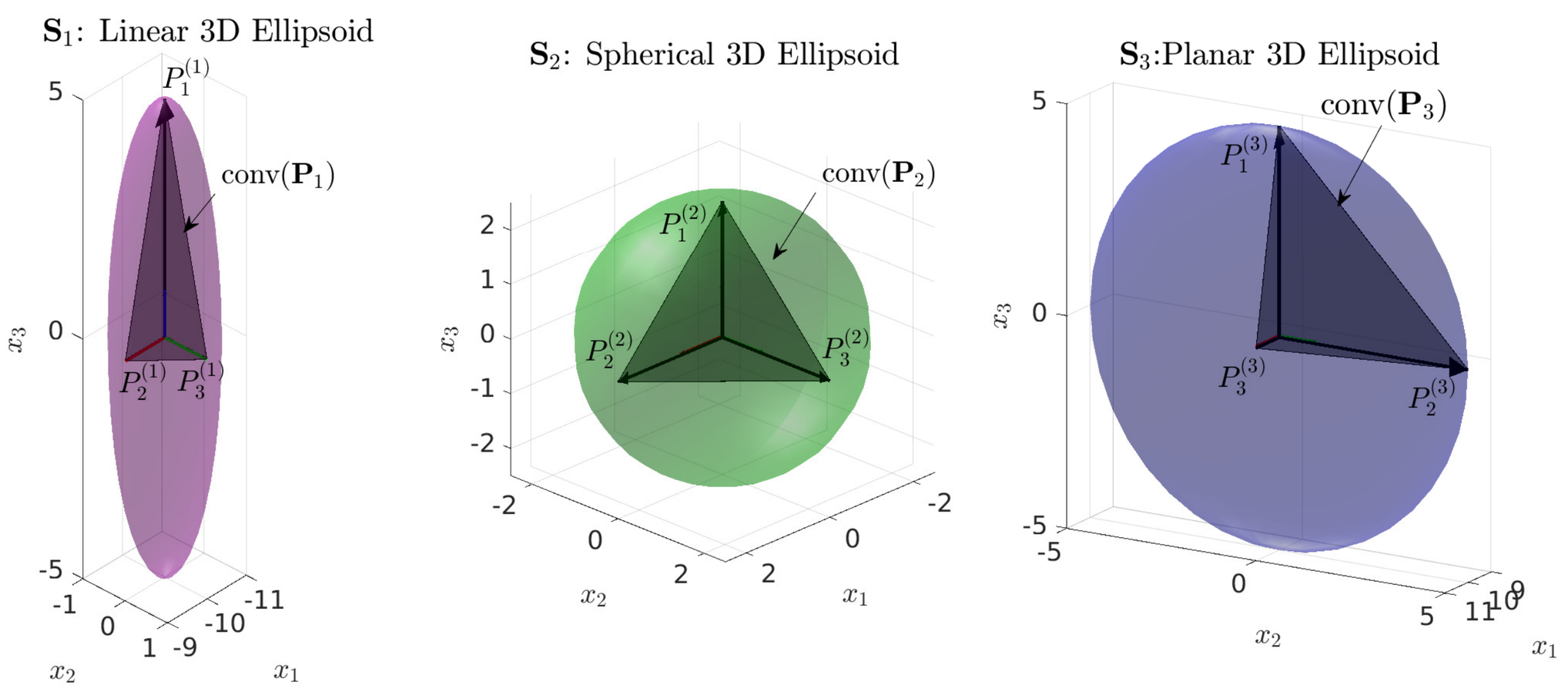
$\mathbf{S}_1$: Linear 3D Ellipsoid
$P_1^{(1)}$
conv($\mathbf{P}_1$)
$P_2^{(1)}$
$P_3^{(1)}$
x_3
x_2
x_1
$\mathbf{S}_2$: Spherical 3D Ellipsoid
conv($\mathbf{P}_2$)
$P_1^{(2)}$
$P_2^{(2)}$
$P_3^{(2)}$
x_3
x_2
x_1
$\mathbf{S}_3$:Planar 3D Ellipsoid
conv($\mathbf{P}_3$)
$P_1^{(3)}$
$P_3^{(3)}$
$P_2^{(3)}$
x_3
x_2
x_1